

Challenge Led Applied System Programme (CLASP) 2019 Call Guidance

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1. Aim, Scope and Funding Available

STFC External Innovations runs a Challenge Led Applied Systems Programme (CLASP) to support the application and commercialisation of STFC research in industrial, environmental and societal grand challenges.

Proposals drawing on technology and expertise from the STFC research community are invited. It is expected these will contribute and/or provide a solution to at least one of the grand challenges outlined in “Priority Challenge Areas” section and for which there would be a demonstrable potential application and market.

Up to £2m will be available in this call for projects which seek to maximise the practical impact of STFC-funded research and innovation to advance or address at least one of the grand challenges by:

- fostering global economic performance, and specifically the business competitiveness of the United Kingdom;
- increasing the effectiveness of public services and policy;
- enhancing quality of life, health and creative output.

Applications should aim to address market needs ideally by working closely with the end users. The application should also consider data ownerships, ethical issues and appropriate regulatory pathways. A business plan is required to provide exploitation plan(s) with support from appropriate industrial and other collaboration to ensure route to market. Proposals offering new technology solutions should consider the importance of interoperability of data generated by devices and/or service.

Proposals should take advantage of the existing effort and skills across the research community funded by STFC. Interdisciplinary projects are welcomed, where appropriate. Funding is available to STFC supported research groups and the call will also fund eligible academic partners from other disciplines. Industry and user engagement during developing the project is strongly encouraged.

CLASP will fund a number of projects ranging from short feasibility studies to larger developmental projects against key milestones. Larger projects may be funded against initial stages only in the first instance with further funding awarded on review of the project progress. When developing proposals, the lead applicants should be mindful of the overall budget of £2m for this call and should request funding appropriate to the scale of the project and the impact that will be achieved.

2. CLASP Challenge Areas

Applicants for this call must state how their proposed research and planned activities will advance at least one of the industrial, environmental and societal challenges facing the UK and other countries. CLASP encompasses UK and global strategic challenges including:

- those faced by industry ([challenge areas within the Industrial Strategy Challenge Fund](#));
- Areas of Research Interest developed by the government departments within the UK (<https://www.gov.uk/government/collections/areas-of-research-interest>);
- And global challenges outlined in the [UN Sustainable Development Goals](#).

CLASP proposals should aim to address market needs ideally by working closely with appropriate end user(s). The proposal should also consider data ownerships, ethical issues and appropriate regulatory pathways. A business plan is required to provide exploitation plan(s) with support from appropriate collaboration with the end user(s) to ensure route to market. Proposals offering new technology solutions should consider the importance of interoperability of data generated by devices and/or service.

Proposals align to UK’s Official Development Assistance (ODA) commitment should be submitted to ODA programmes, such as GCRF or Newton Fund.

3. Eligibility

The lead Research Organisation (RO) must be eligible to hold Research Council grants. Full details of approved Research Organisations can be found within the Eligibility section of the STFC Research Grants Handbook (<https://stfc.ukri.org/research-grants-handbook/2-eligibility/2-2-eligibility-of-research-organisations/>).

Lead applicants must be employed within a Research Organisation group previously or currently funded by the STFC core Science Programme (nuclear physics, particle physics & particle astrophysics, astronomy & space science, and accelerators & computing in support of these) or employed within STFC Laboratories/Facilities and must show that the work proposed will develop technologies and expertise directly from this research.

Proposals for projects must clearly demonstrate that the science, technology and expertise involved originated from the STFC core Science Programme or the STFC facilities and laboratories, CERN, ESO and ESRF (see Annex 1).

For further information applicants should refer to the STFC Research Grants Handbook (<http://www.stfc.ac.uk/research-grants-handbook/>).

4. Timetable

Call closes	PI responses to external referees comments	Panel meet to assess proposals by	Outcome notification including feedback due by
At 4pm on 28 February 2019	Approximately between 29 April and 7 May 2019	w/c 27 May 2019 subject to panel availability	w/c 10 June 2019

5. Application Process

5.1. Je-S Submission

Applicants must prepare and submit your full proposal using the Research Councils’ Joint electronic Submission (Je-S) System (<https://je-s.rcuk.ac.uk>).

To create a new proposal, on logging into Je-S, select:

- Research Council – STFC

- Select the Document type 'Standard Proposal'
- Select Scheme 'CLASP'
- Select call 'CLASP 2019'

Note that clicking 'Submit document' on your proposal form in Je-S initially submits the proposal to your host organisation's administration, not to STFC. Please allow sufficient time for your organisation's submission process between submitting your proposal to them and the call closing date. **STFC must receive your application by 16:00 on the closing date given above.** If you miss the call deadline STFC will not accept your proposal.

Further information on Je-S is available via: <https://je-s.rcuk.ac.uk/Handbook/Index.htm> and please contact the Je-S Helpdesk if you experience difficulties using Je-S or have questions regarding its use. The contact details of the Je-S Helpdesk can be found via: <https://je-s.rcuk.ac.uk/Handbook/pages/JeSHelpdesk.htm>.

5.2. Documents Required

The grant application will comprise a Je-S pro-forma and a number of attachments. Details of what is required in each document are given in this section.

5.2.1. Je-S Pro-forma

The Je-S pro-forma should include:

- Full project costs
- Where a partner is contributing cash and/or in-kind support, it is important this is recorded in the partner section of the Je-S form
- Where the project funds will be held by more than one institution, the PI from each institution must submit a separate Je-S application with a common title and Case for Support
- Only the Lead proposal should submit the Gantt chart, Data Management Plan and any letters of support

5.2.2. Additional Documents for Je-S Submission

The following documents are mandatory and **must** be uploaded through Je-S as separate PDF documents, including:

- Case for support (maximum six pages)
- Letter of support from project partner(s)
- Letter of support from PI's and Co-I's Technology Transfer Office(s)
- Work plan (maximum one page)
- Data management plan (details are available via: <https://stfc.ukri.org/funding/research-grants/data-management-plan/>)

In addition to Case for Support, further information on business plan (up to two pages) can be submitted via Je-S. Please attach this as "Knowledge Exchange Plans" on Je-S to allow referees and panel members to view your document.

A cover letter is optional. However, any additional documents such as CVs, pathway to impact statements and list of publications, etc. will not be sent to external referees for review.

For joint proposals, please forward this instruction to all relevant members of your consortium. All members should use a common title and case for support.

5.2.2.1. Case for Support

The remit of this CLASP call is to provide a solution to at least one of the industrial and/or societal challenges outlined in the “CLASP Challenge Areas” section and proposals should aim to address market needs ideally by working closely with appropriate end user(s). In contrast to a pure research proposal, a full Case for Support should address the scientific, societal and commercial, whether short or long term, aspects of the project.

The case for support should be no longer than six pages and conform to the font and margin guidelines in the Je-S handbook at:

<https://jes.rcuk.ac.uk/Handbook/pages/GuidanceonCompletingaStandardG/CaseforSupportandAttachments/STFCspecificrequirements.htm>.

The case for support should be clear and concise. Each panel member has signed an NDA prior to reviewing any CLASP proposal. However, it is the responsibility of the investigators to ensure that any information is worded in such a way to protect commercially confidential or sensitive areas. **However, sufficient technical information must be provided to help external referees and the panel assess the technical feasibility of the project.** STFC will assume that the applicant has obtained necessary permissions from any party that may be involved in the application.

Moreover, the case for support **must** include information under the following **seven** headings:

5.2.2.1.1. Background and Aim

Please provide information such as:

- What is the STFC funded research that will form the basis of the project?
- What is the aim of this application?
- Who will benefit from this project and subsequent commercialisation?
- What knowledge exchange has taken place between the applicants and industry, policy makers and any other relevant users (if any)?

5.2.2.1.2. Technical Summary

Applicants should use this heading to:

- Describe the current status of the technology or process you are proposing and the plan for development. This should include justification of why you are best placed to carry out this work. Sufficient technical information **must** be provided to help external referees and the panel assess the technical feasibility of the project.
- Demonstrate the novelty of the proposal and/or the expected improvement over current technologies or process relevant to a challenge within scope.

5.2.2.1.3. Business Plan

In addition to Case for Support, further information on business plan (up to two pages) can be submitted via Je-S. Please attach this as “**Knowledge Exchange Plans**” on Je-S to allow referees and panel members to view your document.

Where information is not yet known, please say how you will establish that information during the project. Otherwise, provide evidence that the proposed solution would be beneficial and commercially viable for the target market considering the followings:

5.2.2.1.3.1. Freedom to Operate

Applicants should use this heading to:

- Provide evidence to show that you have freedom to operate (summarise results of patent searches etc.).
- Detail your position regarding protected (background) and potentially protectable intellectual property (provide a summary of current IP).
- Detail any IP which may affect project delivery and exploitation. State the ownership of IP and where necessary how rights have been assigned.
- Describe your strategy for protecting the knowledge arising from the project.

A summary of the IP position should be further detailed in the Letter of Support from your Technology Transfer Office(s).

5.2.2.1.3.2. Market Research

This can be carried out via either desktop or field research (e.g. customer questionnaires). STFC Impact Acceleration Accounts or IPS Fellows Discretionary Fund may be able to support these activities if available. Please seek advice from your Research Office and/or Technology Transfer Office.

Applicants should describe the size of the market opportunities that this project might open up, including details of:

- Current nature of the specific market(s) at which the project is targeted;
- Current size of the overall market and its actual/predicted growth rate and size of the market you will address (if for example your product is a subsection/subcomponent of the overall market);
- The projected market share for the project outcome with justification in light of any potential competitors.

5.2.2.1.3.3. Competitor Analysis

Applicants should provide details of the competitors (these may be from the same technology area or an alternative solution to the same problem), such as:

- Names, location and business size
- Product and/or service
- Price
- Strengths
- Weakness

Applicants should also describe how the proposed technology would offer an advantage, either commercial or societal.

5.2.2.1.3.4. Route to Market

Please use this heading to:

- List the potential exploitable outputs of the project, i.e.
 - What are you going to sell: service, product, license or a combination of the above?
 - What are the projected sales and who are the target customers?
 - What is the profile of those customers (size, geographic location)?
 - What would the estimated Bill of Materials (BoM) be for the product and what percentage is this likely to be of the selling price?
- Provide evidence for your statements about the addressable market for project outcomes based on potential beneficiaries and outline your strategy for developing market share and why you have chosen this market method, i.e.
 - What is your proposed channel to market?
 - What are the key barriers to entry to the market and how will they be overcome?
- Describe the predicted investment and mechanism required post-project to complete commercialisation or successfully apply the technology into real practice, e.g. policy, regulation, improvement of existing process, etc. Explain what the estimated cost and time to have product market ready (technical and regulatory) are.
- For disruptive product/service, please explain:
 - What the route to market might be;
 - What its size might be;
 - How the project will seek to explore the market potential.

5.2.2.1.4. Work Plan and Risk Analysis

Please detail specific work packages, assigning responsibility between partners if required. Applicants should show that they have identified risks and developed alternative strategies to mitigate these. The applicants should consider both technical, programmatic and, where relevant, regulatory and commercial risks.

5.2.2.1.5. Justification for Resources

The Justification for Resources section should state the full cost of the project and explain why the requested resources are needed, including identifying why the proposal presents value for money. It should include a justification for all Directly Incurred Costs, Investigator effort, use of pool staff resources and any access to shared facilities and equipment being sought. No justification of Directly Allocated Estates and Indirect Costs is required. The CLASP Panel can reduce resource requests if they feel there is insufficient justification.

Where any project is proposing to apply for any **capital** funding that is over £10K including VAT, such as items needed to build a prototype, the applicant **must** contact STFC office before submitting the proposal due to the limited capital budget of this programme. Guidance on equipment and capital funding is available via: <https://stfc.ukri.org/research-grants-handbook/5-applying-for-a-grant/5-2-directly-incurred-costs/#5.2.6>.

5.2.2.1.6. Project Deliverables

This section should be used to outline the direct (and any indirect) outputs will be at the end of this grant (please be specific).

5.2.2.1.7. Software Development Plan (If Applicable)

Where the proposal includes software development, a plan should be submitted with details related to the significance of the software development in the project, see **Annex 2**.

5.2.2.2. Letters of Support from Project Partner(s) and Supportive Organisation(s)

Letters of Support must be included from all named partners. In addition, you can include letters of support from other relevant parties who are not directly involved in the project but will support the objectives, for example, potential end users.

Each letter of support should:

- Be on headed paper and signed by a senior member of staff or director. The capacity in which the supporter is signing off the letter should be stated.
- Be no more than two sides of A4 in length and can be provided either on headed paper or as an email (with full contact details).
- Be dated within **six** months of submission
- Detail their interest and involvement in the project in terms of specific objectives and desired outcomes together with market size and their plans for commercializing the technology.
- Specifically relates to the application and should not be too general in nature.
- Detail specific contributions to the project (either cash or in kind) with a justifiable monetary value. These contributions should be repeated in the Case for Support document.

5.2.2.3. Letters of Support from PI's and Co-I's Technology Transfer Office(s)

A letter of support from an applicant's Technology Transfer Office (or equivalent) must be included for each CLASP application. It should relate specifically to the proposal (i.e. should not be a generic letter of support). In addition, the letter should explain in detail how the university sees the project being taken forward and how the university intends to support the work involved, where appropriate.

Each letter should include details of:

- Previous support (if any) from the office that had been already provided to the investigator(s) and project, such as finance or resource.
- Proposed support that will be provided if the application is successful.
- Outline of current and anticipated future IP position, such as information on granted patent and/or ongoing patent applications.

5.2.2.4. Work Plan

Maximum one page: This should be a simply illustrated work plan such as a Grant chart (or a Programme Evaluation and Review Technique).

5.2.2.5. Data Management Plan

Maximum two pages, guidance can be found via: <https://stfc.ukri.org/funding/research-grants/data-management-plan/>.

6. Assessment

CLASP applications will be assessed by an independent panel comprised of members from industry, users and academia. All CLASP Panel members have signed a standard STFC Non-Disclosure Agreements (NDAs). Peer reviewers and panel members are asked to declare conflicts of interest, personal or institutional, where this arises in relation to an application they have been asked to assess.

6.1. CLASP Panel Members

The panel membership as of 18 September 2018 is:

- Dr Jim Wharfe (Chair) – Independent Environment Consultant
- Prof Giles Hammond – University of Glasgow
- Dr Harry Barraza – LGC
- Mr John Allen – Elekta Ltd
- Dr Mark Bray – BAE Systems Applied Intelligence Ltd
- Dr Peter Jarritt – NIHR Brain Injury Healthcare Technology Cooperative
- Dr Peter Huggard – STFC RAL Space
- Dr Richard Bates – University of Glasgow
- Prof Robert Thomson – Heriot-Watt University

6.2. Assessment Process

Each proposal will normally be assessed by up to three peer reviewers, one of whom may be nominated by the applicant. Nominated reviewers must not be collaborators; neither should they be from the applicant's or collaborator's home institution. Applicants have the option to identify reviewers that STFC should not approach. However, STFC reserves the right not to use nominated reviewers.

After the call closes, the eligible proposals are sent to external reviewers once checks are completed by STFC office. Each applicant has the opportunity to respond to reviewers' comments

before the panel meeting when proposals will be reviewed and assessed by the panel according to the assessment criteria. The PI response should be no more than half-a-page of A4 long for each reviewer and submitted back to STFC office within one week of receipt. Applicants will be notified of the decision approximately four weeks after the panel meeting. Applicants will be given brief feedback summarising the reasons why the application was successful or unsuccessful. No further feedback will be available.

Proposals that do not meet the requirements of the call or the submission guidelines will not be sent for external review.

6.3. Assessment Criteria

Proposals must demonstrate that they draw on an area of expertise supported by the STFC core science programme (astronomy & space science, particle physics & particle astrophysics, nuclear physics and the computing and accelerator programmes supporting these) or STFC's staff in laboratories and facilities.

6.3.1. Economic Impact

- Likelihood of commercialisation and route to market;
- Economic benefit, both UK and globally, including cost savings;
- Business plan (e.g. need, size, competitors, value, and location) – please see **section 5.2.2.1.3.** for more details
- IP Management plan
- Timeliness

6.3.2. Societal Impact

- Staff training and capacity building
- Dissemination plan, including educational benefits
- Quality of life
- Influence on policy making
- Academic benefits

6.3.3. Overall Quality

- Scientific quality (current technology status, objectives and deliverables)
- Risk management
- User engagement
- Suitability of applicants and partners (outline who is doing what)
- Value for money (justification of costs)

- Strategic fit to call (addressing key Healthcare challenges)
- Added value of CLASP funding (what would happen if this was not funded)

7. Additional Grant Conditions

If the CLASP project includes more than one organisation (academic or non-academic) on the Je-S form, a collaboration agreement must be signed between all organisations and a copy must be sent to the STFC office before the project start date. Grants will not start until collaboration agreements are in place. This should include how IP will be managed. Guidance on collaboration agreements between university and business is available via: <https://www.gov.uk/guidance/university-and-business-collaboration-agreements-lambert-toolkit>.

8. Reporting via Researchfish

All award holders are required to submit outputs of their CLASP project on the Researchfish platform (<https://www.researchfish.net/>). Award holders are required to provide information about outputs arising from their work annually during the period of the award and normally for at least five years after the award has terminated. More details and guidance on Researchfish can be found via: <https://stfc.ukri.org/funding/funded-grants/researchfish/>.

9. Equality of Opportunities

As a funder of scientific research, STFC is committed to:

- ensuring that people from the protected groups are not discriminated against by our policies, strategies or procedures in the consideration of applications for funding;
- monitoring annually the outcomes of funding applications for evidence of bias;
- consulting on measures to remove barriers to the participation of women in STFC activities, including: involvement in advisory bodies; applying for and being in receipt of funding; and, hence support the retention and career progression of women working in STFC areas of science;
- working proactively with our partners – the universities where we fund research and the international organisations to which the UK subscribes through STFC – to embed there the same equality and diversity principles enshrined in STFC's Equality Scheme.

Further information on STFC's equality of diversity policy can be found via: <https://stfc.ukri.org/about-us/how-we-are-governed/policies-standards/equality-schemes/>.

10. STFC Contacts

The STFC office can provide help and support on CLASP grant applications. We encourage potential applicants to contact the office to discuss their proposal prior to submission to Je-S. Please contact Helen Randell-Sly (helen.randell-sly@stfc.ac.uk).

ANNEX 1: CERN, ESO OR ESRF SCIENTISTS AND ENGINEERS Eligibility

Definitions

CLASP applicants from CERN, ESRF or ESO will be a scientist or engineer performing one of the following functions:

- Research, development or professional work including academic study and/or supervisory responsibility
- Leadership of research, development or professional work involving a wide range of academic study and/or strategic responsibility
- Responsibilities of the highest level of scientific and/or management complexity, originality and wide distinction

All applicants from CERN, ESRF or ESO should provide a covering letter to their Research Proposal stating confirmation that they meet the eligibility criteria as set down above.

An applicant's contract of employment with CERN, ESRF or ESO must extend for at least the period of the grant for which they are seeking funds.

The Principal Investigator need not be a UK citizen.

Additional Guidance

The collaborating organization must have its research or manufacturing base in the UK. Funds requested – all amounts requested should be given in pounds sterling.

Estates and indirect costs will not be applicable to CLASP grants awarded to CERN, ESRF or ESO. The estates and indirect costs addition is covered in the STFC subscription payment to CERN, ESRF or ESO. If the grant is awarded, STFC will pay 80% of the full economic cost of research projects, excluding estates and indirect costs.

Declaration – completed Research Proposal form must be approved by the appropriate Head of Department or equivalent. Applications from CERN shall be submitted through the Director of Technology Transfer and Scientific Computing; applications from ESO through the Head of Administration.

Additional conditions – successful CLASP awards to CERN, ESRF or ESO applicants will be subject to the standard terms and conditions of STFC awards although additional grant conditions might be required on individual grants.

ANNEX 2: SOFTWARE DEVELOPMENT PLAN GUIDELINES

A software development (SD) plan is required for all projects which include SD as a portion of their work, but the detail of the plan should be in proportion to the significance of SD to the project. Where SD is a minor part of the project the plan need not be extensive but where SD is critical to the success of the project and/or takes up a significant portion of the project time the detail of the SD plan should reflect this fact. The plan should be included within the six page case for support.

Overview

Over the last five to ten years the software industry has reached the conclusion that the central problem regarding software quality and major software project failures is one of inadequate management. This annex provides some guidelines to the applicant for the planning (including cost and timescale estimation) and management of the project, and the quality of the software deliverables.

Objectives

If a team is asking for public funding to develop a system, then a reasonable expectation of the application is to provide enough visibility to be assured that:

- The stated goal is to produce software that will be deployed and maintained as a semi-commercial product.
- There is an understood set of project objectives, sufficient to determine a reliable project cost.
- There is an understood development process with identified points for management review, using a methodology that provides some level of control and design evolution.
- There is an understanding of the project cost and its profile throughout the project.

Project management

A minimum requirement on any software project would be to:

- Identify a lifecycle model that will be used as a basis for the management of the project
- Identify the top-level requirements of the project
- Identify the deliverables of the project
- Identify the key lifecycle milestones of the project and their products (including documentation and the availability of any prototypes) and understood success criteria

The proposal need not necessarily identify all of the above, but should provide enough detail and justification to present a convincing case that the development process is understood.

Plan

A plan should be produced within the Case for Support, addressing the project management requirements, including the key milestones. The milestones should have nominal dates assigned to them.

There should be evidence of a cost estimation process and allocation of sufficient resources (cost and staff). If there is not enough visibility to this cost estimation, then it will be assumed that it has not been done adequately and that the project is at risk of not reaching its objectives.

Risks

This should relate to the relative priorities of the project deliverables/functionality - if there are specific areas of high technical/project risk (to be identified), how are these to be managed? If the project needs to be de-scoped to complete on schedule or within cost, what measures will be taken?

The measures that will be taken to minimize cost/risk should be stated: e.g. use of COTS equipment or commercial software, software design tools, software development tools, change management tools, configuration management tools, requirements tracking tools, defect tracking tools.

Project Governance / Oversight

The governance and oversight arrangements should be stated if the project PI is not suitably qualified to oversee software development. Otherwise it will be assumed that the PI is responsible for this section of work.

Development Approach / Methodology

There should be an understood development process with identified points for management review, using a methodology that provides some level of control and design evolution. Examples of types of methodology include the "Waterfall" lifecycle model, a rapid prototyping / iterative or incremental delivery methodology.

Requirement analysis

The user needs should be clearly stated in the Case for Support and should encompass both functional requirements and non-functional requirements such as usability, resilience, performance and supportability.

The relative priorities of the project deliverables/functionality should be stated.

Design

The appropriate design activities should be stated, which may include conceptual, architectural, preliminary, or detailed design.

Testing Approach/ Quality Overview

The end product should be robust, practical and meet the needs of the users. Explain what measures will be taken to assure software quality: ideally a software development/quality plan.

Again, such a plan does not have to be a large part of the Case for Support, but it does need to address how the project will assure that it will meet its design objectives, as represented by the requirements.

The testing activities may include coding testing, unit module testing, subsystem testing, Software / hardware testing, system integration testing and user acceptance testing.

Implementation / Deployment

The implementation activities, and any post-implementation and maintenance activities should be stated.

Explain what software documentation should be produced – systems and user documentation.